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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/714,731

11/17/2003

Masamichi Murota

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12/13/2005

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EXAMINER

METZMAIER, DANIEL S

ART UNIT

PAPER NUMBER

1712

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/714,731

Applicant(s)

MUROTA ET AL.

Examiner

Daniel S. Metzmaier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 Nov 2003 & 4 March 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3 and 5-20 is/are pending in the application.
- 4a) Of the above claim(s) 3,5-9,12,13 and 15-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,10,11,14,19 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/893,513.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3/4/2004 .                      6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Claims 1, 3, and 5-20 are pending. Claims 3, 5-9, 12-13, and 15-18 have been withdrawn as directed to non-elected inventions.

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1, 10-11 and 19-20, drawn to an aqueous nanoparticle ceramic agglomerate dispersion, classified in class 516, subclass 81.
  - II. Claims 3, 5-6, and 17-18, drawn to ink-jet recording medium and paper, classified in class 428, subclass 195.1.
  - III. Claims 7-9 and 13, drawn to method of making an ink-jet recording medium, classified in class 428, subclass 323.
  - IV. Claim 12, drawn to a nanoparticle, classified in class 428, subclass 402.
  - V. Claim 14, drawn to a polymer dispersion, classified in class 524, subclass 493.
  - VI. Claims 15-16, drawn to a method of making a nanoparticle dispersion, classified in class 516, subclass 81.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of Group I and Group II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a

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filler in polymers or as a raw material in making ceramic composite and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

3. Inventions of Group II and Group III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product may be made by processes that do not require the cooling step of Group III.

4. Inventions of Groups IV or V and Group I are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as defoaming additive, ceramic composite additive, or a coagulant and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not

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patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Claims 12 and 14 are directed to an agglomerated particle and a cationic polymer containing dispersion. Applicants' amendments and arguments in the parent case are evidence that applicants believe the viscosity limitation imparts distinction and suggest that the agglomerated particles are indistinct from the prior art materials. No claims to the particles or cationic polymer containing dispersions *per se* were set forth in the originally filed application and are deemed to be a distinct invention and this application is characterized as a straight continuation. The restriction of the parent application should carry through to the continuation.

Furthermore, regarding the cationic polymer containing dispersions, at least some cationic polymers would have been expected to have a material effect on the viscosity. Since none of the claims define concentrations of either the ceramic agglomerates or the cationic polymer, it is deemed reasonable to conclude that Group V is an independent and distinct invention from Group I.

5. Inventions of Group VI and Group I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different

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process (MPEP § 806.05(f)). In the instant case the compositions of Group I may be made by other forms of mixing than jet milling. It is noted that composition claims are examined based on the composition and the process limitations are given patentable weight only to the extent said process limitations would impart a patentable distinction or structure to the composition.

6. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and the search required for Groups II and III is not required for Group I, IV, V, and VI, restriction for examination purposes as indicated is proper.

8. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

9. During a telephone conversation with Robert G. Weilacher on December 1, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1, 10-11, and 19-20. Upon reconsideration of the representative Groups and the review of the parent application, Group IV, claim 14, has been grouped with Group I as a related dispersion composition. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3, 5-9, 12-13, and 15-18 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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10. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Oath/Declaration***

11. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c). See the address of the third inventor named in the declaration.

The original declaration of record is corrupted. Specifically, the clause regarding "willful false statements ..." required by 37 CFR 1.68 has been corrupted and is not entirely legible. See left side of declaration. The Official copy has been marked "Best Available Copy".

***Specification***

12. The disclosure is objected to because of the following informalities: the parent application status should be updated to the parent case current status, i.e., "now abandoned".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 1, 10-11, 14 and 19-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cabot Corporation (hereafter Cabot), WO 00/01539. Cabot discloses (abstract, examples and claims) coating compositions for use in recording mediums. Cabot (page 8, lines 8 et seq) discloses the metal oxides employed in the compositions. Cabot discloses (page 11, lines 4 et seq) a first group of particles that are agglomerated particles having a preferred mean diameter of about 0.07 to 0.3  $\mu\text{m}$  (0.07 to 0.3  $\mu\text{m}$  equates to 70 to 300



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nanometers (nm)) and a preferred particle size distribution (page 11, line 33 to page 12, line 9) that is very narrow.

Cabot further discloses (page 19, line 36 to page 20, line 20 and Tables 1 and 2) the coating compositions employing the dispersed metal oxide nanoparticle aggregates have a viscosity at a relatively high shear rate in the range of less than 100 centipoise at 22°C. A viscosity of 1.0 centipoise = 1.0 mPa.s.

The ranges claimed for particle size<sup>1</sup>, particle size distribution and viscosity substantially overlap and would have been expected to have been inherent to and read on the claimed ranges. See MPEP 2131.03. The ranges are deemed anticipated since they are taught with sufficient specificity.

See also MPEP 2112.02, wherein when the structure recited in the reference is substantially identical to that of the claims, the claimed properties are presumed to be inherent. To the extent the Cabot reference incorporates a second group of particles not set forth in the instant claims, the claims employ open language, *i.e.*, comprising, that is open to the incorporations of other materials. The Cabot reference discloses compositions that are taught for the same purpose as those instantly claimed and the incorporation of further ingredients as disclosed in the Cabot reference is not precluded from the claimed compositions. Furthermore, claims 1 and 2 explicitly define the agglomerated dispersion particle distribution rather than all the particles in the compositions.

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<sup>1</sup> The particle size disclosed is characterized as a mean particle size rather than the claimed average diameter. The mean is synonymous with the average.

To the extent the claims were to define the particle distribution of all the ceramic nanoparticles in the composition, Cabot (comparative examples) anticipates the compositions since the compositions are made with agglomerated particles in the absence of the second group of particles and having (tables 1 and 2) viscosities in the range claimed.

To the extent the Cabot reference differs in the particular properties of viscosity, particle size, and/or particle size distribution as claimed, some variation would have been expected for a particular coating composition. Since all the ranges defining the physical properties of the claim overlap and/or are generally taught in the Cabot reference, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to vary the compositions for the advantages taught in the Cabot reference of appearance, gloss, ink absorption and image smear resistance.

To the extent the further incorporation of the second group of particles is interpreted as a ceramic particle for the purpose of defining the particle size distribution, said interpretation does not distinguish the claims under anticipation or obviousness. Initially, comparative examples show the claimed compositions. Also, the second group of particles is not agglomerates as set forth in the claims. Lastly, the Cabot reference (page 16, lines 3-20) does not require the second group of particles to be metal oxides, *i.e.*, ceramic, by the inclusion of polyolefins, plastics, urea resins and melamine resins as second group of particles. These are not ceramic particles. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the organic polymer materials as the second group of particles.

Regarding the process limitations of claims 11 and 20, product-by-process claims are not limited to the steps recited in the claims. Product-by-process claims are limited only by the structure implied by the steps recited. In the instant case, the steps recited are to give a narrow particle size distribution, which the prior art teaches as the desired form of the products.

17. Claims 1, 10-11, 14 and 19-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Liu et al, 5,958,168. Liu et al (examples) discloses coating compositions for ink receiving coatings. Liu et al discloses particles substantially identical to those claimed that are pulverized by a high pressure homogenizer. The physical properties as claimed would have been inherent to the compositions of the Liu et al reference based on the substantially identical characterization of the compositions for the same utility and the instant invention.

To the extent the viscosity and/or the particle size distribution disclosed in the Liu et al reference differs from the claims, some variation would have been expected for a particular coating composition. Since all the ranges defining the physical properties of the claim overlap and/or are generally taught in the Liu et al reference, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to vary the compositions for the advantages taught in the Liu et al reference of appearance, gloss, ink absorption and image smear resistance.

Regarding the process limitations of claims 11 and 20, product-by-process claims are not limited to the steps recited in the claims. Product-by-process claims are limited

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only by the structure implied by the steps recited. In the instant case, the steps recited are to give a narrow particle size distribution, which the prior art teaches as the desired form of the products.

### ***Conclusion***

18. The prior art of record and not relied upon is considered pertinent to applicant's disclosure. The remaining references cited in the European search report are considered cumulative or less pertinent than the references relied on above.

19. This is a Continuation of applicant's earlier Application No. 09/893,513. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

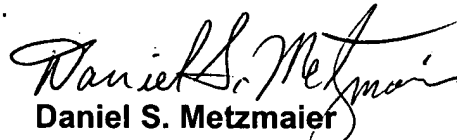
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Daniel S. Metzmaier  
Primary Examiner  
Art Unit 1712

DSM